DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention]This invention relates to the art of manufacturing the display panel constituted by the set of the cell which is a display device which has a memory function, In the manufacturing method of AC (exchange) type plasma display panel (Plasma Display Panel:PDP), the 1st substrate and 2nd substrate are combined especially, In the culmination of the panel production after enclosing the gas for discharge, for stabilization of a discharge cell, activation of a dielectric surface (MgO side), etc., It is related with the plasma display device which uses the technique and the panel manufactured by making it such of aging which discharges continuously by impressing a voltage pulse predetermined [prolonged] over the whole panel surface.
[0002]
[Description of the Prior Art]Above AC type PDP maintains discharge by impressing a voltage waveform to two sustenance electrodes by turns, and performs an light-emitting display. Discharge is once ended in several [1 to] microseconds immediately after pulse applying. The ion which is the positive charge by which it was generated by discharge is accumulated in the surface of the insulating layer on the electrode to which negative voltage is impressed, and the electron which is a negative charge similarly is accumulated in the surface of the insulating layer on the electrode to which positive voltage is impressed.
[0003]Therefore, after making it discharge first by the pulse (write pulse) of high voltage (write voltage) and generating wall charge, If the pulse (a maintenance pulse or a sustaining discharge pulse) of voltage (sustaining voltage or sustenance discharge voltage) lower than polar different last time is impressed, it is overlapped with the wall charge accumulated before, and the voltage to discharge space will become big and will start discharge exceeding the threshold of discharge. That is, the cell which performed writing discharge once and generated wall charge is impressing a maintenance pulse with reverse polarity by turns after that, and there is the feature of maintaining discharge. This is called the memory effect or the memory function. Generally, AC type PDP displays using this memory effect.
[0004]The firing potential after an assembly is dropped, and aging is performed in order to expand the voltage margin from which a memory effect is obtained. In order to clarify the purpose of aging, and its technique, structure of a plasma display panel and a drive method for the same are explained. As 3 electrode and plane discharge AC type PDP which performs a colored presentation, the thing as shows drawing 5 the outline top view is known. Drawing 6 is a rough sectional view (perpendicular direction)

in one discharge cell of the panel of drawing 5.

Drawing 7 is a horizontal rough sectional view similarly.

Suppose that the same reference number is given and expressed with the same functional division in the figure shown below.

[0005]The panel is constituted by the two glass substrates 21 and 29. The 1st electrode (X electrode) 12 and the 2nd electrode (y electrodes) 13 which are sustenance electrodes which are parallel to the 1st substrate 21 are provided.

These electrodes are constituted by the transparent electrodes 22a and 22b and the bus electrodes 23a and 23b.

Since a transparent electrode has a role which makes the catoptric light from a fluorescent substance penetrate, it is formed of ITO (transparent conductor film which uses indium oxide as the main ingredients) etc. In order that a bus electrode may prevent the sag by electrical resistance, it is necessary to form it by low resistance, and it is formed of Cr (chromium) or Cu (copper). They are covered with the dielectric layer (glass) 24, and the MgO (magnesium oxide) film 25 is formed in a discharging face as a protective film. The 3rd electrode (address electrode) 13 is formed in the 2nd substrate 29 that faces the 1st glass substrate 21 in the form which intersects perpendicularly with sustenance electrodes. An address electrode is covered by the dielectric layer 29, the barrier 14 is formed in a portion corresponding between the address electrodes on the dielectric layer 29, and the fluorescent substance 27 which has red and a green and blue luminescent characteristic for the dielectric layer 29 with a wrap form is formed between the barrier. Therefore, the fluorescent substance 27 will be arranged corresponding to the address electrode 13. Two glass substrates are assembled in the ridge of the barrier 14, and the form which the MgO side 25 sticks. The space between the fluorescent substance 27 and the MgO side 25 is the discharge space 26.

[0006]Address discharge which chooses a cell is performed by choosing an address electrode and y electrodes. The address electrode and y electrodes which cause address discharge are packed hereafter, and an address electrode is called. Maintenance discharge is performed between X electrode and y electrodes. The y electrodes and X electrode which cause maintenance discharge are summarized hereafter, and sustenance electrodes are called. By the panel of the above structures, maintenance discharge is performed in the one (a discharge slit is called.) where the inter-electrode gap about which maintenance discharge is performed is narrower, and in the gap (a reverse slit is called.) of the larger one, since field intensity is small, maintenance discharge does not break out.

[0007]Arrangement of entire sustenance electrodes becomes condition, such as X electrode of the 1st display line, y electrodes of the 1st display line, X electrode of the 2nd display line, y electrodes of the 2nd display line, X electrode of the 3rd display line, and y electrodes of the 3rd display line. Drawing 8 is a rough block diagram showing the peripheral circuit for driving PDP shown in drawing 7 from drawing 5. The address electrode 13-1, 13-2, and -- are connected to the address driver 105 for [every], and the address pulse at the time of address discharge is impressed with the address driver. The y electrodes 11-1, 11-2, and -- are connected to the Y scan driver 102. It is connected to Y common Leiber 103, and the Y scan driver 102 generates the pulse at the time of address discharge from the Y scan driver 102, generates maintenance pulses with the Y common driver 103, and is impressed to y electrodes via the Y scan driver 102. Over all the display lines of a panel, it is connected in common and the X electrode 12 is taken out. The X common driver 104 generates a write pulse, a maintenance pulse,

etc. These driver circuits are controlled by the control circuit 106, and the control circuit 106 is controlled by the synchronized signal and display data signal which are inputted from the exterior of a device.

[0008]The control circuit 106 is provided with the indicative-data control section 107 and the panel drive control section 109, and also the frame memory 108 is formed in the indicative-data control 107. The scan driver control section 110 and the common driver control section 111 are formed in the panel drive control section 109.

Although a timing generation part, an address driver control section, etc. are otherwise provided in the panel drive control section 109, since it is not directly related to an invention, it has omitted here.

[0009]Drawing 9 is a wave form chart showing the conventional method of driving PDP shown in drawing 7 from drawing 5 by the circuit shown in drawing 8.

One subfield period what is called in conventional "address / maintenance discharge period discrete type, and writing address method" is shown.

Detailed explanation of operation is shown in Japanese Patent Application No. No. 310937 [five to]. In this example, one subfield is divided a reset period, address periods, and also during the maintenance discharge. In a reset period, whole surface writing discharge and matter erase discharge are performed, and the state of all the cells in a panel will be in the uniform state where there is no wall charge. This reset period has the operation which changes all the cells into the same state irrespective of the lighted condition of the front SABUFU field, and it is performed in order to be able to perform the next address (writing) discharge stably.

[0010]Next, in address periods, in order to turn on and off the cell according to an indicative data, address discharge is performed by line sequential. First, impress the scanning pulse of -VY level (abbreviation minus 150V) to y electrodes, and. The address pulse of the voltage Va (about 50V) is selectively impressed to the address electrode corresponding to the cell which causes maintenance discharge among address electrodes, i.e., the cell made to turn on, and discharge breaks out between the address electrode and y electrodes of the cell made to turn on. Next, it shifts to discharge between X electrode (voltage Vx=50V) and y electrodes immediately by making this into priming (pilot flame). Thereby, the wall charge of the quantity in which maintenance discharge is possible is accumulated in the MgO side on X electrode of the selection cell of a selection line, and y electrodes.

[0011]Hereafter, one by one, about other display lines, same operation is performed and the writing of a new indicative data is performed in all the display lines. Then, if a maintenance discharge period comes, the maintenance pulse whose voltage is Vs (about 180V) by turns will be impressed to y electrodes and X electrode, maintenance discharge will be performed, and image display of 1 SABUFU field will be performed.

[0012]Next, the aging process at the time of manufacturing a plasma display panel as shown in drawing 7 from drawing 5 is explained. Aging activates a discharging face (MgO side), firing potential is dropped, a memory voltage margin is expanded, and there is an operation which makes homogeneity discharge over stability and the whole surface. The details about the conventional aging method and its use are indicated to JP,56-38082,A, JP,2-28432,A, JP,4-245294,A, Japanese Patent Application No. No. 17065 [six to], etc.

[0013]The conventional aging is impressing the y electrodes Y1 of the panel 100, Y2, --, the X electrode X1, X2, -- and the maintenance pulse impressed when connecting XN to the aging equipment 120 and performing a display, and the voltage pulse of the same gestalt, as shown in (1) of drawing 10. [YN,] In

aging by conventional technology, all the X electrodes are connected in common, all the y electrodes are connected in common, between all the X electrode and all the y electrodes, as shown in (2) of drawing 10, the pulse from which a phase differs is impressed and discharge is performed. The pulse which compares (2) and drawing 9 of drawing 10, and is impressed to X electrode and y electrodes in aging by conventional technology so that clearly is similar to the pulse impressed to X electrode and y electrodes at the time of the maintenance discharge at the time of using it as a display. However, the voltage of the pulse which it is at the aging start time and is impressed to X electrode and y electrodes is higher than about 300 v and firing potential to the voltage of the pulse at the time of maintenance discharge being 180V. It is common that a signal is not impressed but it is in a flow DINGU state to the address electrode 13 which is the 3rd electrode at the time of aging.

[0014]

[Problem(s) to be Solved by the Invention]In PDP which has structure as shown in drawing 7 from drawing 5, since the barrier 14 is formed on the stripe of a lengthwise direction, combination of the spatial cell is divided into the transverse direction with a physical structure called the barrier 14. Since a barrier does not exist in one space of a lengthwise direction, it is not divided with a physical structure, but discharge occurs and a cell is divided with the larger one in the form where discharge does not arise in the one where the gap of X electrode and y electrodes is only narrower. Therefore, in such PDP, the gap (inter-electrode distance) by the side of a reverse slit is made larger than the gap by the side of a discharge slit, and the difference is given to firing potential.

[0015]When performing address discharge according to the drive method shown in drawing 9, discharge between an address electrode and y electrodes is performed as the 1st step, The y electrodes which are the 2nd step, and X inter-electrode discharge are caused by making this into a trigger, and the wall charge which makes maintenance discharge possible is formed in the MgO side of X electrode and y electrodes. Here, when the difference of the firing potential between a discharge slit and a reverse slit is small, discharge of the 2nd step occurs in the reverse slit side, and discharge to a discharge slit does not arise, but the problem that normal maintenance discharge cannot be performed arises. Therefore, the large thing as much as possible of the difference of the firing potential between a discharge slit and a reverse slit is desirable.

[0016]And since a cell pitch is in the tendency which becomes increasingly small and is difficult to establish the difference of the gap of a discharge slit and a reverse slit, it is easy to produce the problem that discharge will also generate the above-mentioned reverse slit side, as high definition-ization of a panel progresses. As mentioned above, the purpose of reducing firing potential also has aging. Here, if only the firing potential by the side of a discharge slit falls, and discharge is not performed about the reverse slit side at the time of aging but high firing potential is maintained as it is by aging, the difference of the firing potential between a discharge slit and a reverse slit will be expanded. Therefore, the discharge at the time of aging needs to produce only to a discharge slit and not to be generated in a reverse slit.

[0017]generally, gas pressure and an inter-electrode gap determine the firing potential of PDP -- having (Paschen's law) -- it is and is characteristic. Therefore, discharge to a regular discharge slit (for example, X1 electrode and Y1 inter-electrode) is performed, and since impressed electromotive force is high, as for some cells, discharge may be started [reverse slit side]. For example, before aging, the firing potential of a discharge slit is 220V to 250V, and the firing potential of a reverse slit is 290V to 320V.

After aging, the firing potential of a reverse slit remains as it is, only the firing potential of a discharge slit falls further, and the difference of the firing potential of a discharge slit and a reverse slit becomes still larger.

[0018]However, at the time of aging, since voltage higher than firing potential is impressed continuously, the reverse slit side may also exceed firing potential. For example, if the pulse of the voltage of 300V is impressed at the time of aging, discharge may arise at a part of reverse slit. As a result, although the firing potential of a discharge slit also falls, the firing potential by the side of some reverse slits to which discharge was performed similarly also falls, and the problem that the difference of firing potential with a discharge slit cannot be extended is produced.

[0019]When carrying out complete writing and whole surface self-elimination and changing the inside of a cell into the state where there is no wall charge, in the drive method at the time of EJIN shown in drawing 10, It is hard to generate discharge between an address electrode and y electrodes at the time of whole surface writing discharge, and since the accumulated dose of the wall charge of the discharging face between an address electrode and y electrodes is insufficient, the positive self erase discharge between an address electrode and y electrodes is not expectable. Although **** which enlarges potential difference between the address electrode at the time of complete writing and y electrodes is good and what is necessary is just to impress high voltage to an address electrode in order to make it not produce such a problem, it is restrained from pressure-proofing of an address driver.

[0020]Since a certain amount of wall charge is required for self erase discharge, in the case of a little wall charge, it may remain, without being neutralized. On the y electrodes by the side of an address electrode far from a discharge slit, and a reverse slit, especially such a possibility is large. Therefore, when performing discharge between an address electrode and y electrodes, evils, such as being unable to discharge the 1st step of address discharge, becoming strong discharge, causing self-elimination, or causing discharge of an adjacent cell in an operation of the wall charge which remained between an address electrode and y electrodes, occur.

[0021]However, in the conventional aging method, since it is in the open condition by which a potential signal is not impressed to an address electrode, discharge between an address electrode and sustenance electrodes is not performed. Therefore, the firing potential between an address electrode and y electrodes does not change, but is still high. It is realizing the aging method which this invention's is made in view of the above-mentioned problem, and discharge produces the 1st purpose only to a discharge slit, and is not produced in a reverse slit, and the 2nd purpose is to realize the aging method to which the firing potential between an address electrode and y electrodes is reduced.

[0022]

[Means for Solving the Problem]A manufacturing method of a plasma display panel of the 1st mode of this invention, Two or more the 1st electrode and 2nd electrode that were provided in the 1st substrate and have been arranged in parallel for every display line, It is provided in the 2nd substrate that counters the 1st substrate or 1st substrate, and extends in the direction right-angled in a direction to which two or more the 1st electrode and 2nd electrode extend, It is a manufacturing method of a plasma display panel which is provided with two or more 3rd electrodes arranged in parallel mutually and with which a display cell is specified by group of the 1st electrode and the 2nd electrode, and the 3rd electrode, In the 1st electrode of each class which specifies a display cell after an assembly of a plasma display panel, and a manufacturing method of a plasma display panel which performs aging which impresses a pulse signal to inter-electrode [2nd], At the time of aging, a signal of the same potential of a pulse signal is

impressed to the 1st adjoining electrode and 2nd electrode that constitute a display cell of an adjoining display line. It connects, and the 1st adjoining electrode and 2nd electrode that constitute a display cell of an adjoining display line are made into an aging group, and also carry out grouping of this aging group arranged by turns to two groups, and it is made to impress a pulse signal between these two groups.

[0023]A plasma display panel which provided the 1st common connection pattern and the 2nd common connection pattern which connect the 1st electrode belonging to each group and the 2nd electrode in common is manufactured, A pulse signal is impressed as mentioned above via these 1st and 2nd common connection patterns at the time of aging, and it removes the 1st and 2nd common connection patterns after an end of aging.

[0024]Since a signal of the same potential is impressed to the 1st adjoining electrode and 2nd electrode of a display line that potential difference by impressed electromotive force occurs only to a discharge slit, and form a reverse slit in a manufacturing method of a plasma display panel of the 1st mode of this invention, it is same electric potential. Therefore, at the time of aging, discharge is performed only to a discharge slit and discharge is not performed by a reverse slit. Therefore, the reverse slit side is not activated by aging and firing potential does not fall. Since a difference of firing potential of a discharge slit and a reverse slit can be extended certainly, it produces only to a discharge slit and stops therefore, producing maintenance discharge in a reverse slit.

[0025]And since the 1st common connection pattern and the 2nd common connection pattern which connect the 1st electrode belonging to each group and the 2nd electrode in common are provided, connection with aging equipment which generates a pulse signal impressed to the 1st electrode and the 2nd electrode at the time of aging can be made easily. Since the 1st common connection pattern and the 2nd common connection pattern are removed after aging, an electrode configuration at the time of making it operate as the time of aging and a display can be changed easily.

[0026]A manufacturing method of a plasma display panel of the 2nd mode of this invention, Two or more the 1st electrode and 2nd electrode that were provided in the 1st substrate and have been arranged in parallel for every display line, It has two or more 3rd electrodes that were prolonged in the direction right-angled in a direction to which it is provided in the 2nd substrate that counters the 1st substrate or 1st substrate, and two or more the 1st electrode and 2nd electrode extend, and have been arranged in parallel mutually, It is a manufacturing method of a plasma display panel with which a display cell is specified by group of the 1st electrode and the 2nd electrode, and the 3rd electrode, In the 1st electrode of each class which specifies a display cell after an assembly of a plasma display panel, and a manufacturing method of a plasma display panel which performs aging which impresses a pulse signal to inter-electrode [2nd], At the time of aging, a pulse signal impressed to the 1st electrode or 2nd electrode and a pulse signal in phase are impressed to two or more 3rd electrodes.

[0027]At the time of aging, voltage of a pulse signal impressed to two or more 3rd electrodes is the same as that of a pulse signal impressed to the 1st electrode or 2nd electrode, or let it be voltage smaller than it. In order that according to the manufacturing method of a plasma display panel of the 2nd mode of this invention big potential difference may be given at the time of aging and it may make small potential difference between X electrode and an address electrode between an address electrode and y electrodes, An address electrode and X inter-electrode discharge is not performed, and discharge between y electrodes and an address electrode is performed. As a result, a discharge slit between X electrode and y electrodes is activated, and a field which performs discharge between an address electrode and y

electrodes is activated. Therefore, since complete writing and whole surface self erase discharge between an address electrode and y electrodes are performed certainly and wall charge is neutralized when making it operate as a display, a discharge mistake in address discharge is avoidable. Since firing potential between an address electrode and y electrodes can be made low, a drive by a low voltage is attained in address discharge.

[0028]According to the manufacturing method of a plasma display panel of the 2nd mode of this invention, give big potential difference between an address electrode and y electrodes at the time of aging, but. Since it is not so large as voltage impressed between X electrode and y electrodes, though it presses down that a fluorescent substance is damaged with ion, a discharging face of an address electrode and y electrodes is activable.

[0029]

[Embodiment of the Invention]Drawing 1 is a figure showing the aging method of the 1st example of this invention, and (1) The X electrode X1 of the plasma display panel 100 at the time of aging, X2, --, XN, They are the y electrodes Y1, Y2, --, a figure in which showing a connected state with the aging equipment 120 of YN, and showing the pulse signal with which (2) is outputted from aging equipment.

[0030]As shown in (1) of drawing 1, the X electrode X1, X3, --, XN and the y electrodes Y2, Y4, --, Y (N-1), After being pulled out by right-hand side and connected in common, it is connected to X side edge child of the aging equipment 120, and YN is connected to Y side edge child of the aging equipment 120, after being pulled out by left-hand side and connected in common, the X electrode X2, X4, --, X (N-1) and the y electrodes Y1, Y3, --,. That is, even-numbered X electrode and the odd-numbered y electrodes are connected to Y side edge child of the aging equipment 120 in common. The signal shown in (2) of the same drawing 1 as the conventional aging equipment moreover shown in (2) of drawing 10 from the aging equipment 120 is outputted, and it is impressed by X electrodes each and y electrodes.

[0031]If a pulse signal is impressed from the aging equipment 120 by the above connection, potential difference will arise in the sustenance electrodes (group of X electrode and y electrodes) which form a discharge slit, but potential difference does not arise in the sustenance electrodes which form a reverse slit, but it becomes same electric potential. Therefore, even if discharge occurs only to a discharge slit at the time of aging and it outputs the pulse signal of high voltage from the aging equipment 120, it will not discharge in a reverse slit. Therefore, since only the firing potential of a discharge slit falls depending on aging and the firing potential of a reverse slit does not fall, the difference of the firing potential of the discharge slit after aging and a reverse slit becomes large certainly.

[0032]When using it as a display, as shown in drawing 8, the plasma display panel 100 needs to connect X electrodes each to the X common driver 104, after connecting in common, and Y electrodes each need to connect it to the Y scan driver 102, respectively. However, in performing the aging method of the 1st example, as shown in drawing 1, it is necessary to connect X electrode and y electrodes to an EIJINGU device, and differs from connection of drawing 8. Therefore, it is necessary to change connection with the exterior of X electrode and y electrodes in the time of aging, and the time of assembling to the display after the end of aging.

[0033]Usually, as for X electrode and y electrodes, about 480 connection with ****s and those exteriors is made by a (flexible cable) etc., respectively. Since it is not difficult and efficient to form simultaneously the X common driver 104 and the Y scan driver 102 on the plasma display panel 100, either, After fixing IC of the X common driver 104 and the Y scan driver 102 on the substrate with

which the plasma display panel 100 top or it is laid after aging of the plasma display panel 100, The electrode pad of IC, X electrode, and y electrodes is connected by bonding wires (flexible cable etc.). In the time of connection of X electrode and y electrodes assembling to the time of aging, and a display, if the same, it is satisfactory, but. It is not preferred to make another connection to aging, when connection of X electrode and y electrodes differs in the time of assembling to the time of aging and a display in order to make the cost which aging takes increase. The shape and the manufacturing process of the plasma display panel 100 suitable for performing the aging method of the 1st example are shown in the 2nd example.

[0034]Drawing 2 is a figure showing the shape of the plasma display panel 100 of the 2nd example. In drawing 2, the reference number 100 is a panel part at the time of completion, 130a and 130b are common connection portions which use it only at the time of aging, and after the end of aging is a portion removed. As shown in drawing 2, the electrode pad 132b of X electrodes each is formed in the right end of the panel 100, and the electrode pad 132a of Y electrodes each is formed in the left end. The X electrode X1, X3, --, XN and the y electrodes Y2, Y4, --, Y (N-1), It is pulled out by right-hand side and connected to the common connection pattern 131b of the common connection portion 130b, and the X electrode X2, X4, --, X (N-1) and the y electrodes Y1, Y3, --, YN are pulled out by right-hand side, and are connected to the common connection pattern 131a of the common connection portion 130a.

[0035]At the time of aging, as shown in drawing 2, the X side contact button of the aging equipment 120 is connected to the common connection pattern 131b, the Y side contact button is connected to the common connection pattern 131a, and the pulse signal shown in (2) of drawing 1 from the aging equipment 120 is impressed. At the process of cutting the common connection portions 130a and 130b, and assembling a display after that after the end of aging, the electrode pad 132a is connected to the Y scan driver 102, and the electrode pad 132b is connected to the X common driver 104.

[0036]Drawing 3 is a figure showing the aging method of the 3rd example of this invention. As shown in drawing 3, the X electrode X1, X2, --, XN and the address electrode A1 which is the 3rd electrode, A2, --, Am is connected to X side edge child of the aging equipment 120 after being connected in common, and YN is connected to Y side edge child of the aging equipment 120 after being connected in common, the y electrodes Y1, Y2, --,. From the aging equipment 120, the same pulse signal as having been shown in (2) of drawing 1 is outputted. Therefore, between X electrode and y electrodes, discharge is performed like the conventional example shown in drawing 10. In the 3rd example, since the pulse signal of the same potential is further impressed with the address electrode A1, A2, --, the phase same to Am as the X electrode X1, X2, --, being impressed by XN, discharge is performed also between an address electrode and y electrodes. Since the same signal is impressed to an address electrode and X electrode, discharge is not generated. That is, in aging of the 3rd example, discharge arises between y electrodes, X inter-electrode, and y electrodes and an address electrode, and discharge does not break out between X electrode and an address electrode. Thereby, the discharge slit between X electrode and y electrodes is activated, and the field which performs discharge between an address electrode and y electrodes is activated.

[0037]Since the complete writing and whole surface self erase discharge between an address electrode and y electrodes are performed certainly and wall charge is neutralized by this when making it operate as a display, the discharge mistake in address discharge is avoidable. Since firing potential between an address electrode and y electrodes can be made low, a drive by the low voltage is attained in address

discharge.

[0038]However, in the 3rd example, in order to repeat powerful discharge between an address electrode and y electrodes, there is a problem that the fluorescent substance formed in the address electrode side may be damaged. In the 4th example, it carries out as [arise / this problem]. Drawing 4 is a figure showing the aging method of the 4th example of this invention. As shown in (1) of drawing 4, in the aging method of the 4th example. It is connected to X side edge child of the aging equipment 120 after XN is connected in common, the X electrode X1, X2, --,, The y electrodes Y1, Y2, --, after YN is connected in common, it is connected to Y side edge child of the aging equipment 120, and Am is connected to A side edge child of the aging equipment 120 after being connected in common, the address electrode A1, A2, --,. From the aging equipment 120, the pulse signal shown in (2) of drawing 3 is outputted. Therefore, between X electrode and y electrodes, discharge is performed like the 3rd example. The address electrode A1, A2, --, intensity's of discharge becoming small compared with the 3rd example, although Am, the y electrodes Y1, Y2, --, voltage smaller than the 3rd example will be impressed between YN(s) and discharge is performed, and damaging a fluorescent substance decrease. The voltage between XN(s) is the address electrode A1, A2, --, Am and the X electrode X1, X2, --, a size that discharge does not produce. For example, in (2) of drawing 4, VH is 300V and the voltage given to an address electrode changes with the same phase as the signal impressed to X electrode between 100V and 200V. Therefore, the voltage between an address electrode and y electrodes is always 200V, and the voltage between an address electrode and X electrode is always 100V.

[0039]The plasma display panel aged with the aging method of the 1st example to the 4th example explained above is assembled like the conventional panel, and becomes a plasma display device which has composition as shown in drawing 8.

[0040]

[Effect of the Invention]According to this invention, as explained above, since the firing potential of a discharge slit is reduced according to aging and it maintains that the firing potential by the side of a reverse slit is still high, it is hard to produce the discharge by the side of a reverse slit, and the plasma display device which can perform an exact display can be realized. Since it becomes possible to reduce voltage required for address operation, the device of low power consumption is realizable. Since the work at the time of aging can be simplified, a manufacturing cost can be reduced.

[Translation done.]